

Gunter, Jason

From: Nations, Mark [mnations@doerun.com]
Sent: Friday, April 12, 2013 12:20 PM
To: Gunter, Jason
Cc: England, Jason; Yingling, Mark; Wohl, Matthew; robert.hinkson@dnr.mo.gov; Ty Morris (TMorris@barr.com)
Subject: Leadwood Monthly Progress Report
Attachments: Leadwood.pdf; Teklab Lab Report 13030308_03-06-13.pdf

Jason:

Attached is the Leadwood progress report for the month of March 2013.

In an effort to reduce the amount of paper generated I am requesting to eliminate the hard copies. If anyone prefers or requires a hard copy in addition to the electronic, please let me know.

Thanks Mark

This message is intended solely for the designated recipient and may contain confidential, privileged or proprietary information. If you have received it in error, please notify the sender immediately and delete the original and any copy or printout. Please note that any views or opinions presented in this e-mail are solely those of the author and do not necessarily represent those of The Doe Run Company. Finally, the recipient should check this message and any attachments for the presence of viruses or malware. The Doe Run Company accepts no liability for any loss or damage caused through the transmission of this e-mail.

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**THE
DOE RUN
COMPANY**

Remediation Group

Mark Nations
Mining Properties Manager
mnations@doerun.com

April 12, 2013

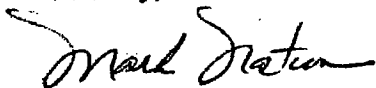
Mr. Jason Gunter
Remedial Project Manager
U.S. Environmental Protection Agency
Region 7 - Superfund Branch
11201 Renner Blvd.
Lenexa, KS 66219

Re: The Doe Run Company - Leadwood Mine Tailings Site Monthly Progress Report

Dear Mr. Gunter:

As required by Article VI, Section 50 of the Unilateral Administrative Order (Docket No. CERCLA-07-2006-0272) for the referenced project and on behalf of The Doe Run Company, the progress report for the period March 1, 2013 through March 31, 2013 is enclosed. If you have any questions or comments, please call me at 573-518-0800.

Sincerely,



Mark Nations
Mining Properties Manager

Enclosures

- c: Jason England – TDRC**
Mark Yingling – TDRC (electronic only)
Matt Wohl – TDRC (electronic only)
Robert Hinkson – MDNR
Ty Morris – Barr Engineering

Leadwood Mine Tailings Site
Leadwood, Missouri
Removal Action - Monthly Progress Report
Period: March 1, 2013 – March 31, 2013

1. Actions Performed or Completed This Period:

- a. No activities were completed at the site during this period.

2. Data and Results Received This Period:

- a. During this period, water samples were collected from downstream of Leadwood Dam and the East Seep and Erosion Area, as well as from upstream and downstream of the confluence of Eaton Creek with Big River. The analytical results for this event are included with this progress report.
- b. During this period, the Ambient Air Monitoring Reports for December 2012 and Fourth Quarter 2012 were completed. Any issues identified in these reports are discussed below. A copy of these documents has been sent to your attention.

The December 2012 Ambient Air Monitoring Report noted the following:

- The action levels for lead and dust were not exceeded.
- No samples were taken with the TSP monitors on 12/24/12 and 12/25/12 due to the holiday.
- No samples were taken with the PM₁₀ monitors on 12/26/12 due to the holiday.
- There was a QA blank filter for the Big River #4 (School) TSP and PM₁₀ monitors on 12/28/12.

The Fourth Quarter 2012 Ambient Air Monitoring Report noted the following:

- The action levels for lead and dust were not exceeded.
- No sample was taken with the Big River #4 (Primary) PM₁₀ monitor on 10/09/12 due to mechanical failure of the elapsed time indicator. Upon discovery, the issue was corrected.
- No sample was taken with the Big River #4 (Primary) TSP monitor on 11/02/12 due to the filter being compromised by moisture during a storm event. Upon discovery, the issue was corrected.
- The sample for Big River #4 (QA) PM₁₀ monitor was invalid on 11/05/12 due to the elapsed run time being outside of the tolerances. Upon identifying the issue, timer and sampling procedures were evaluated and the issue was corrected.
- No samples were taken with the TSP and PM₁₀ monitors on 11/21/12, 11/22/12, and 11/23/12 due to the holiday.
- No samples were taken with the TSP monitors on 12/24/12 and 12/25/12 due to the holiday.
- No samples were taken with the PM₁₀ monitors on 12/26/12 due to the holiday.
- There was a QA blank filter for the Big River #4 (School) TSP and PM₁₀ monitors on 12/28/12.

3. Scheduled Activities not Completed This Period:

- a. None.

4. Planned Activities for Next Period:

- a. Continue vegetation maintenance activities. The use of biosolids will only be continued if a biosolids management plan has been submitted to and approved by EPA.
- b. It is anticipated that EPA will use this site as a soil repository in the future. Preparations for these activities will continue.
- c. Complete monthly water sampling activities as described in the Removal Action Work Plan.
- d. Complete air monitoring activities as described in the Removal Action Work Plan.

5. Changes in Personnel:

- a. None.

6. Issues or Problems Arising This Period:

a. None.

7. Resolution of Issues or Problems Arising This Period:

a. None.

End of Monthly Progress Report

March 28, 2013

Allison Olds
Barr Engineering Company
1001 Diamond Ridge
Suite 1100
Jefferson City, MO 65109
TEL: (573) 638-5007
FAX: (573) 638-5001



RE: Leadwood Mine Tailings Site NPDES

WorkOrder: 13030308

Dear Allison Olds:

TEKLAB, INC received 7 samples on 3/7/2013 9:40:00 AM for the analysis presented in the following report.

Samples are analyzed on an as received basis unless otherwise requested and documented. The sample results contained in this report relate only to the requested analytes of interest as directed on the chain of custody. NELAP accredited fields of testing are indicated by the letters NELAP under the Certification column. Unless otherwise documented within this report, Teklab Inc. analyzes samples utilizing the most current methods in compliance with 40CFR. All tests are performed in the Collinsville, IL laboratory unless otherwise noted in the Case Narrative.

All quality control criteria applicable to the test methods employed for this project have been satisfactorily met and are in accordance with NELAP except where noted. The following report shall not be reproduced, except in full, without the written approval of Teklab, Inc.

If you have any questions regarding these tests results, please feel free to call.

Sincerely,



Elizabeth A. Hurley
Project Manager
(618)344-1004 ex 33
ehurley@teklabinc.com



Report Contents

<http://www.teklabinc.com/>

Client: Barr Engineering Company

Work Order: 13030308

Client Project: Leadwood Mine Tailings Site NPDES

Report Date: 28-Mar-13

This reporting package includes the following:

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Client: Barr Engineering Company

Work Order: 13030308

Client Project: Leadwood Mine Tailings Site NPDES

Report Date: 28-Mar-13

Abbr Definition

- CCV Continuing calibration verification is a check of a standard to determine the state of calibration of an instrument between recalibration.
- DF Dilution factor is the dilution performed during analysis only and does not take into account any dilutions made during sample preparation. The reported result is final and includes all dilutions factors.
- DNI Did not ignite
- DUP Laboratory duplicate is an aliquot of a sample taken from the same container under laboratory conditions for independent processing and analysis independently of the original aliquot.
- ICV Initial calibration verification is a check of a standard to determine the state of calibration of an instrument before sample analysis is initiated.
- IDPH IL Dept. of Public Health
- LCS Laboratory control sample, spiked with verified known amounts of analytes, is analyzed exactly like a sample to establish intra-laboratory or analyst specific precision and bias or to assess the performance of all or a portion of the measurement system. The acceptable recovery range is in the QC Package (provided upon request).
- LCSD Laboratory control sample duplicate is a replicate laboratory control sample that is prepared and analyzed in order to determine the precision of the approved test method. The acceptable recovery range is listed in the QC Package (provided upon request).
- MB Method blank is a sample of a matrix similar to the batch of associated sample (when available) that is free from the analytes of interest and is processed simultaneously with and under the same conditions as samples through all steps of the analytical procedures, and in which no target analytes or interferences should present at concentrations that impact the analytical results for sample analyses.
- MDL Method detection limit means the minimum concentration of a substance that can be measured and reported with 99% confidence that the analyte concentration is greater than zero and is determined from analysis of a sample in a given matrix type containing the analyte.
- MS Matrix spike is an aliquot of matrix fortified (spiked) with known quantities of specific analytes that is subjected to the entire analytical procedures in order to determine the effect of the matrix on an approved test method's recovery system. The acceptable recovery range is listed in the QC Package (provided upon request).
- MSD Matrix spike duplicate means a replicate matrix spike that is prepared and analyzed in order to determine the precision of the approved test method. The acceptable recovery range is listed in the QC Package (provided upon request).
- MW Molecular weight
- ND Not Detected at the Reporting Limit
- NELAP NELAP Accredited
- PQL Practical quantitation limit means the lowest level that can be reliably achieved within specified limits of precision and accuracy during routine laboratory operation conditions. The acceptable recovery range is listed in the QC Package (provided upon request).
- RL The reporting limit the lowest level that the data is displayed in the final report. The reporting limit may vary according to customer request or sample dilution. The reporting limit may not be less than the MDL.
- RPD Relative percent difference is a calculated difference between two recoveries (ie. MS/MSD). The acceptable recovery limit is listed in the QC Package (provided upon request).
- SPK The spike is a known mass of target analyte added to a blank sample or sub-sample; used to determine recovery deficiency or for other quality control purposes.
- Surr Surrogates are compounds which are similar to the analytes of interest in chemical composition and behavior in the analytical process, but which are not normally found in environmental samples.
- TNTC Too numerous to count (> 200 CFU)

Qualifiers

- | | |
|--|---|
| # - Unknown hydrocarbon | B - Analyte detected in associated Method Blank |
| E - Value above quantitation range | H - Holding times exceeded |
| M - Manual Integration used to determine area response | ND - Not Detected at the Reporting Limit |
| R - RPD outside accepted recovery limits | S - Spike Recovery outside recovery limits |
| X - Value exceeds Maximum Contaminant Level | |



Case Narrative

<http://www.teklabinc.com/>

Client: Barr Engineering Company

Work Order: 13030308

Client Project: Leadwood Mine Tailings Site NPDES

Report Date: 28-Mar-13

Cooler Receipt Temp: 1.8 °C

The Total and Dissolved results for Zinc on sample LW-DUP did not match the original sample result. The dissolved result was significantly higher than the total result. The sample was analyzed several times using the following:

13030308-005C Total Zinc as received with Nitric Acid.

13030308-005D Dissolved Zinc as received filtered with Nitric Acid.

13030308-006A Total Zinc analyzed straight from the unfiltered Nitric Acid bottle (-005C). No prep procedure was used.

13030308-006B Dissolved Zinc analyzed straight from the filtered Nitric Acid bottle (-005D). No prep procedure was used.

13030308-007A A portion of the unpreserved TSS bottle (-005A) was filtered and analyzed for Dissolved Zinc. No prep procedure was used.

Locations and Accreditations

Collinsville		Springfield		Kansas City	
Address	5445 Horseshoe Lake Road Collinsville, IL 62234-7425	Address	3920 Pintail Dr Springfield, IL 62711-9415	Address	8421 Nieman Road Lenexa, KS 66214
Phone	(618) 344-1004	Phone	(217) 698-1004	Phone	(913) 541-1998
Fax	(618) 344-1005	Fax	(217) 698-1005	Fax	(913) 541-1998
Email	jhriley@teklabinc.com	Email	KKlostermann@teklabinc.com	Email	dthompson@teklabinc.com

State	Dept	Cert #	NELAP	Exp Date	Lab
Illinois	IEPA	100226	NELAP	1/31/2014	Collinsville
Kansas	KDHE	E-10374	NELAP	1/31/2014	Collinsville
Louisiana	LDEQ	166493	NELAP	6/30/2013	Collinsville
Louisiana	LDEQ	166578	NELAP	6/30/2013	Springfield
Texas	TCEQ	T104704515-12-1	NELAP	7/31/2013	Collinsville
Arkansas	ADEQ	88-0966		3/14/2014	Collinsville
Illinois	IDPH	17584		4/30/2013	Collinsville
Kentucky	UST	0073		5/26/2013	Collinsville
Missouri	MDNR	00930		4/13/2013	Collinsville
Oklahoma	ODEQ	9978		8/31/2013	Collinsville

Client: Barr Engineering Company

Work Order: 13030308

Client Project: Leadwood Mine Tailings Site NPDES

Report Date: 28-Mar-13

Lab ID: 13030308-001

Client Sample ID: LW-001

Matrix: AQUEOUS

Collection Date: 03/06/2013 8:30

Analyses	Certification	RL	Qual	Result	Units	DF	Date Analyzed	Batch
EPA 600 375.2 REV 2.0 1993 (TOTAL)								
Sulfate	NELAP	200	S	210	mg/L	20	03/12/2013 19:30	R174694
<i>MS and/or MSD did not recover within control limits due to matrix interference.</i>								
STANDARD METHOD 4500-H B, LABORATORY ANALYZED								
Lab pH	NELAP	1.00		7.91		1	03/07/2013 11:43	R174494
STANDARD METHODS 2340 C								
Hardness, as (CaCO ₃)	NELAP	5		320	mg/L	1	03/07/2013 16:17	R174563
STANDARD METHODS 2540 D								
Total Suspended Solids	NELAP	6		< 6	mg/L	1	03/07/2013 12:38	R174527
STANDARD METHODS 2540 F								
Solids, Settleable	NELAP	0.2		< 0.2	ml/L	1	03/07/2013 11:20	R174526
STANDARD METHODS 5310 C, ORGANIC CARBON								
Total Organic Carbon (TOC)	NELAP	1.0		3.2	mg/L	1	03/08/2013 20:19	R174603
EPA 600 4.1.1, 200.7R4.4, METALS BY ICP (DISSOLVED)								
Cadmium	NELAP	2.00		< 2.00	µg/L	1	03/07/2013 18:43	86292
Zinc	NELAP	10.0		629	µg/L	1	03/07/2013 18:43	86292
EPA 600 4.1.4, 200.7R4.4, METALS BY ICP (TOTAL)								
Cadmium	NELAP	2.00		< 2.00	µg/L	1	03/08/2013 11:10	86302
Zinc	NELAP	10.0		858	µg/L	1	03/08/2013 15:20	86302
STANDARD METHODS 3030 E, 3113 B, METALS BY GFAA								
Lead	NELAP	2.00	X	6.40	µg/L	1	03/08/2013 15:07	86295
STANDARD METHODS 3030 B, 3113 B, METALS BY GFAA (DISSOLVED)								
Lead	NELAP	2.00		4.80	µg/L	1	03/07/2013 15:06	86289

Client: Barr Engineering Company

Work Order: 13030308

Client Project: Leadwood Mine Tailings Site NPDES

Report Date: 28-Mar-13

Lab ID: 13030308-002

Client Sample ID: LW-002

Matrix: AQUEOUS

Collection Date: 03/06/2013 9:55

Analyses	Certification	RL	Qual	Result	Units	DF	Date Analyzed	Batch
EPA 600 375.2 REV 2.0 1993 (TOTAL)								
Sulfate	NELAP	200		515	mg/L	20	03/12/2013 19:41	R174694
STANDARD METHOD 4500-H B, LABORATORY ANALYZED								
Lab pH	NELAP	1.00		7.93		1	03/07/2013 11:45	R174494
STANDARD METHODS 2340 C								
Hardness, as (CaCO ₃)	NELAP	5		670	mg/L	1	03/07/2013 16:17	R174563
STANDARD METHODS 2540 D								
Total Suspended Solids	NELAP	6		< 6	mg/L	1	03/07/2013 12:38	R174527
STANDARD METHODS 2540 F								
Solids, Settleable	NELAP	0.2		< 0.2	ml/L	1	03/07/2013 11:20	R174526
STANDARD METHODS 5310 C, ORGANIC CARBON								
Total Organic Carbon (TOC)	NELAP	1.0		2.4	mg/L	1	03/08/2013 20:26	R174603
EPA 600 4.1.1, 200.7R4.4, METALS BY ICP (DISSOLVED)								
Cadmium	NELAP	2.00		2.00	µg/L	1	03/07/2013 18:49	86292
Zinc	NELAP	10.0	S	3270	µg/L	1	03/07/2013 18:49	86292
<i>MS QC limits for Zn are not applicable due to high sample/spike ratio.</i>								
EPA 600 4.1.4, 200.7R4.4, METALS BY ICP (TOTAL)								
Cadmium	NELAP	2.00		3.10	µg/L	1	03/08/2013 11:16	86302
Zinc	NELAP	10.0		3540	µg/L	1	03/08/2013 15:26	86302
STANDARD METHODS 3030 E, 3113 B, METALS BY GFAA								
Lead	NELAP	2.00	X	8.63	µg/L	1	03/08/2013 15:17	86295
STANDARD METHODS 3030 B, 3113 B, METALS BY GFAA (DISSOLVED)								
Lead	NELAP	2.00	X	5.28	µg/L	1	03/07/2013 15:23	86289

Client: Barr Engineering Company

Work Order: 13030308

Client Project: Leadwood Mine Tailings Site NPDES

Report Date: 28-Mar-13

Lab ID: 13030308-003

Client Sample ID: LW-US

Matrix: AQUEOUS

Collection Date: 03/06/2013 8:10

Analyses	Certification	RL	Qual	Result	Units	DF	Date Analyzed	Batch
EPA 600 375.2 REV 2.0 1993 (TOTAL)								
Sulfate	NELAP	10		13	mg/L	1	03/14/2013 23:25	R174806
STANDARD METHOD 4500-H B, LABORATORY ANALYZED								
Lab pH	NELAP	1.00		7.93		1	03/07/2013 11:48	R174494
STANDARD METHODS 2340 C								
Hardness, as (CaCO ₃)	NELAP	5		150	mg/L	1	03/07/2013 16:17	R174563
STANDARD METHODS 2540 D								
Total Suspended Solids	NELAP	6		< 6	mg/L	1	03/07/2013 12:38	R174527
STANDARD METHODS 5310 C, ORGANIC CARBON								
Total Organic Carbon (TOC)	NELAP	1.0		1.8	mg/L	1	03/08/2013 20:32	R174603
EPA 600 4.1.1, 200.7R4.4, METALS BY ICP (DISSOLVED)								
Cadmium	NELAP	2.00		< 2.00	µg/L	1	03/07/2013 19:07	86292
Zinc	NELAP	10.0		< 10.0	µg/L	1	03/07/2013 19:07	86292
EPA 600 4.1.4, 200.7R4.4, METALS BY ICP (TOTAL)								
Cadmium	NELAP	2.00		< 2.00	µg/L	1	03/08/2013 11:34	86302
Zinc	NELAP	10.0		< 10.0	µg/L	1	03/08/2013 15:44	86302
STANDARD METHODS 3030 E, 3113 B, METALS BY GFAA								
Lead	NELAP	2.00		< 2.00	µg/L	1	03/08/2013 15:20	86295
STANDARD METHODS 3030 B, 3113 B, METALS BY GFAA (DISSOLVED)								
Lead	NELAP	2.00		< 2.00	µg/L	1	03/07/2013 15:26	86289

Client: Barr Engineering Company

Work Order: 13030308

Client Project: Leadwood Mine Tailings Site NPDES

Report Date: 28-Mar-13

Lab ID: 13030308-004

Client Sample ID: LW-DS

Matrix: AQUEOUS

Collection Date: 03/06/2013 7:40

Analyses	Certification	RL	Qual	Result	Units	DF	Date Analyzed	Batch
EPA 600 375.2 REV 2.0 1993 (TOTAL)								
Sulfate	NELAP	10		17	mg/L	1	03/12/2013 19:49	R174694
STANDARD METHOD 4500-H B, LABORATORY ANALYZED								
Lab pH	NELAP	1.00		7.90		1	03/07/2013 11:50	R174494
STANDARD METHODS 2340 C								
Hardness, as (CaCO ₃)	NELAP	5		190	mg/L	1	03/07/2013 16:17	R174563
STANDARD METHODS 2540 D								
Total Suspended Solids	NELAP	6		< 6	mg/L	1	03/07/2013 12:38	R174527
STANDARD METHODS 5310 C, ORGANIC CARBON								
Total Organic Carbon (TOC)	NELAP	1.0		1.8	mg/L	1	03/08/2013 20:38	R174603
EPA 600 4.1.1, 200.7R4.4, METALS BY ICP (DISSOLVED)								
Cadmium	NELAP	2.00		< 2.00	µg/L	1	03/07/2013 19:25	86292
Zinc	NELAP	10.0		19.8	µg/L	1	03/07/2013 19:25	86292
EPA 600 4.1.4, 200.7R4.4, METALS BY ICP (TOTAL)								
Cadmium	NELAP	2.00		< 2.00	µg/L	1	03/08/2013 11:40	86302
Zinc	NELAP	10.0		19.6	µg/L	1	03/08/2013 15:50	86302
STANDARD METHODS 3030 E, 3113 B, METALS BY GFAA								
Lead	NELAP	2.00		< 2.00	µg/L	1	03/08/2013 15:24	86295
STANDARD METHODS 3030 B, 3113 B, METALS BY GFAA (DISSOLVED)								
Lead	NELAP	2.00		< 2.00	µg/L	1	03/07/2013 15:29	86289

Client: Barr Engineering Company

Work Order: 13030308

Client Project: Leadwood Mine Tailings Site NPDES

Report Date: 28-Mar-13

Lab ID: 13030308-005

Client Sample ID: LW-DUP

Matrix: AQUEOUS

Collection Date: 03/06/2013 0:00

Analyses	Certification	RL	Qual	Result	Units	DF	Date Analyzed	Batch
EPA 600 375.2 REV 2.0 1993 (TOTAL)								
Sulfate	NELAP	100		233	mg/L	10	03/14/2013 14:12	R174806
STANDARD METHOD 4500-H B, LABORATORY ANALYZED								
Lab pH	NELAP	1.00		7.97		1	03/07/2013 11:51	R174494
STANDARD METHODS 2340 C								
Hardness, as (CaCO ₃)	NELAP	5		390	mg/L	1	03/07/2013 16:17	R174563
STANDARD METHODS 2540 D								
Total Suspended Solids	NELAP	6		< 6	mg/L	1	03/07/2013 12:38	R174527
STANDARD METHODS 2540 F								
Solids, Settleable	NELAP	0.2		< 0.2	ml/L	1	03/07/2013 11:20	R174526
STANDARD METHODS 5310 C, ORGANIC CARBON								
Total Organic Carbon (TOC)	NELAP	1.0		3.4	mg/L	1	03/08/2013 20:45	R174603
EPA 600 4.1.1, 200.7R4.4, METALS BY ICP (DISSOLVED)								
Cadmium	NELAP	2.00		< 2.00	µg/L	1	03/07/2013 19:31	86292
Zinc	NELAP	10.0		1800	µg/L	1	03/07/2013 19:31	86292
EPA 600 4.1.4, 200.7R4.4, METALS BY ICP (TOTAL)								
Cadmium	NELAP	2.00		< 2.00	µg/L	1	03/08/2013 12:03	86302
Zinc	NELAP	10.0		717	µg/L	1	03/08/2013 15:56	86302
STANDARD METHODS 3030 E, 3113 B, METALS BY GFAA								
Lead	NELAP	2.00	X	5.49	µg/L	1	03/08/2013 15:27	86295
STANDARD METHODS 3030 B, 3113 B, METALS BY GFAA (DISSOLVED)								
Lead	NELAP	2.00		3.82	µg/L	1	03/07/2013 15:33	86289

Client: Barr Engineering Company**Work Order:** 13030308**Client Project:** Leadwood Mine Tailings Site NPDES**Report Date:** 28-Mar-13**Lab ID:** 13030308-006**Client Sample ID:** LW-DUP HNO3 Non-digested**Matrix:** AQUEOUS**Collection Date:** 03/06/2013 0:00

Analyses	Certification	RL	Qual	Result	Units	DF	Date Analyzed	Batch
EPA 600 4.1.1, 200.7R4.4, METALS BY ICP (DISSOLVED)								
Zinc	NELAP	10.0		1840	µg/L	1	03/15/2013 14:03	R174811
EPA 600 4.1.4, 200.7R4.4, METALS BY ICP (TOTAL)								
Zinc	NELAP	10.0		702	µg/L	1	03/18/2013 13:38	R174879

Client: Barr Engineering Company

Work Order: 13030308

Client Project: Leadwood Mine Tailings Site NPDES

Report Date: 28-Mar-13

Lab ID: 13030308-007

Client Sample ID: LW-DUP Unpreserved TSS Bottle

Matrix: AQUEOUS

Collection Date: 03/06/2013 0:00

Analyses	Certification	RL	Qual	Result	Units	DF	Date Analyzed	Batch
EPA 600 4.1.1, 200.7R4.4, METALS BY ICP (DISSOLVED)								
Zinc	NELAP	10.0		2030	µg/L	1	03/18/2013 11:51	R174879

Sample Summary

<http://www.teklabinc.com/>

Client: Barr Engineering Company

Work Order: 13030308

Client Project: Leadwood Mine Tailings Site NPDES

Report Date: 28-Mar-13

Lab Sample ID	Client Sample ID	Matrix	Fractions	Collection Date
13030308-001	LW-001	Aqueous	5	03/06/2013 8:30
13030308-002	LW-002	Aqueous	5	03/06/2013 9:55
13030308-003	LW-US	Aqueous	5	03/06/2013 8:10
13030308-004	LW-DS	Aqueous	5	03/06/2013 7:40
13030308-005	LW-DUP	Aqueous	5	03/06/2013 0:00
13030308-006	LW-DUP HNO3 Non-digested	Aqueous	2	03/06/2013 0:00
13030308-007	LW-DUP Unpreserved TSS Bottle	Aqueous	1	03/06/2013 0:00

Client: Barr Engineering Company

Work Order: 13030308

Client Project: Leadwood Mine Tailings Site NPDES

Report Date: 28-Mar-13

Sample ID	Client Sample ID	Collection Date	Received Date	Prep Date/Time	Analysis Date/Time
13030308-001A	LW-001	03/06/2013 8:30	03/07/2013 9:40		
	Standard Methods 2540 D				03/07/2013 12:38
	Standard Methods 2540 F				03/07/2013 11:20
13030308-001B	LW-001	03/06/2013 8:30	03/07/2013 9:40		
	EPA 600 375.2 Rev 2.0 1993 (Total)				03/12/2013 19:30
	Standard Method 4500-H B, Laboratory Analyzed				03/07/2013 11:43
	Standard Methods 2340 C				03/07/2013 16:17
13030308-001C	LW-001	03/06/2013 8:30	03/07/2013 9:40		
	EPA 600 4.1.4, 200.7R4.4, Metals by ICP (Total)			03/07/2013 15:45	03/08/2013 11:10
	EPA 600 4.1.4, 200.7R4.4, Metals by ICP (Total)			03/07/2013 15:45	03/08/2013 15:20
	Standard Methods 3030 E, 3113 B, Metals by GFAA			03/07/2013 14:42	03/08/2013 15:07
13030308-001D	LW-001	03/06/2013 8:30	03/07/2013 9:40		
	EPA 600 4.1.1, 200.7R4.4, Metals by ICP (Dissolved)			03/07/2013 12:42	03/07/2013 18:43
	Standard Methods 3030 B, 3113 B, Metals by GFAA (Dissolved)			03/07/2013 12:07	03/07/2013 15:06
13030308-001E	LW-001	03/06/2013 8:30	03/07/2013 9:40		
	Standard Methods 5310 C, Organic Carbon				03/08/2013 20:19
13030308-002A	LW-002	03/06/2013 9:55	03/07/2013 9:40		
	Standard Methods 2540 D				03/07/2013 12:38
	Standard Methods 2540 F				03/07/2013 11:20
13030308-002B	LW-002	03/06/2013 9:55	03/07/2013 9:40		
	EPA 600 375.2 Rev 2.0 1993 (Total)				03/12/2013 19:41
	Standard Method 4500-H B, Laboratory Analyzed				03/07/2013 11:45
	Standard Methods 2340 C				03/07/2013 16:17
13030308-002C	LW-002	03/06/2013 9:55	03/07/2013 9:40		
	EPA 600 4.1.4, 200.7R4.4, Metals by ICP (Total)			03/07/2013 15:45	03/08/2013 11:16
	EPA 600 4.1.4, 200.7R4.4, Metals by ICP (Total)			03/07/2013 15:45	03/08/2013 15:26
	Standard Methods 3030 E, 3113 B, Metals by GFAA			03/07/2013 14:42	03/08/2013 15:17
13030308-002D	LW-002	03/06/2013 9:55	03/07/2013 9:40		
	EPA 600 4.1.1, 200.7R4.4, Metals by ICP (Dissolved)			03/07/2013 12:42	03/07/2013 18:49
	Standard Methods 3030 B, 3113 B, Metals by GFAA (Dissolved)			03/07/2013 12:07	03/07/2013 15:23
13030308-002E	LW-002	03/06/2013 9:55	03/07/2013 9:40		
	Standard Methods 5310 C, Organic Carbon				03/08/2013 20:26
13030308-003A	LW-US	03/06/2013 8:10	03/07/2013 9:40		
	Standard Methods 2540 D				03/07/2013 12:38
13030308-003B	LW-US	03/06/2013 8:10	03/07/2013 9:40		
	EPA 600 375.2 Rev 2.0 1993 (Total)				03/14/2013 23:25



Dates Report

<http://www.teklabinc.com/>

Client: Barr Engineering Company

Work Order: 13030308

Client Project: Leadwood Mine Tailings Site NPDES

Report Date: 28-Mar-13

Sample ID	Client Sample ID	Collection Date	Received Date	Prep Date/Time	Analysis Date/Time
	Test Name				
	Standard Method 4500-H B, Laboratory Analyzed				03/07/2013 11:48
	Standard Methods 2340 C				03/07/2013 16:17
13030308-003C	LW-US	03/06/2013 8:10	03/07/2013 9:40		
	EPA 600 4.1.4, 200.7R4.4, Metals by ICP (Total)			03/07/2013 15:45	03/08/2013 11:34
	EPA 600 4.1.4, 200.7R4.4, Metals by ICP (Total)			03/07/2013 15:45	03/08/2013 15:44
	Standard Methods 3030 E, 3113 B, Metals by GFAA			03/07/2013 14:42	03/08/2013 15:20
13030308-003D	LW-US	03/06/2013 8:10	03/07/2013 9:40		
	EPA 600 4.1.1, 200.7R4.4, Metals by ICP (Dissolved)			03/07/2013 12:42	03/07/2013 19:07
	Standard Methods 3030 B, 3113 B, Metals by GFAA (Dissolved)			03/07/2013 12:07	03/07/2013 15:26
13030308-003E	LW-US	03/06/2013 8:10	03/07/2013 9:40		
	Standard Methods 5310 C, Organic Carbon				03/08/2013 20:32
13030308-004A	LW-DS	03/06/2013 7:40	03/07/2013 9:40		
	Standard Methods 2540 D				03/07/2013 12:38
13030308-004B	LW-DS	03/06/2013 7:40	03/07/2013 9:40		
	EPA 600 375.2 Rev 2.0 1993 (Total)				03/12/2013 19:49
	Standard Method 4500-H B, Laboratory Analyzed				03/07/2013 11:50
	Standard Methods 2340 C				03/07/2013 16:17
13030308-004C	LW-DS	03/06/2013 7:40	03/07/2013 9:40		
	EPA 600 4.1.4, 200.7R4.4, Metals by ICP (Total)			03/07/2013 15:45	03/08/2013 11:40
	EPA 600 4.1.4, 200.7R4.4, Metals by ICP (Total)			03/07/2013 15:45	03/08/2013 15:50
	Standard Methods 3030 E, 3113 B, Metals by GFAA			03/07/2013 14:42	03/08/2013 15:24
13030308-004D	LW-DS	03/06/2013 7:40	03/07/2013 9:40		
	EPA 600 4.1.1, 200.7R4.4, Metals by ICP (Dissolved)			03/07/2013 12:42	03/07/2013 19:25
	Standard Methods 3030 B, 3113 B, Metals by GFAA (Dissolved)			03/07/2013 12:07	03/07/2013 15:29
13030308-004E	LW-DS	03/06/2013 7:40	03/07/2013 9:40		
	Standard Methods 5310 C, Organic Carbon				03/08/2013 20:38
13030308-005A	LW-DUP	03/06/2013 0:00	03/07/2013 9:40		
	Standard Methods 2540 D				03/07/2013 12:38
	Standard Methods 2540 F				03/07/2013 11:20
13030308-005B	LW-DUP	03/06/2013 0:00	03/07/2013 9:40		
	EPA 600 375.2 Rev 2.0 1993 (Total)				03/14/2013 14:12
	Standard Method 4500-H B, Laboratory Analyzed				03/07/2013 11:51
	Standard Methods 2340 C				03/07/2013 16:17
13030308-005C	LW-DUP	03/06/2013 0:00	03/07/2013 9:40		
	EPA 600 4.1.4, 200.7R4.4, Metals by ICP (Total)			03/07/2013 15:45	03/08/2013 12:03
	EPA 600 4.1.4, 200.7R4.4, Metals by ICP (Total)			03/07/2013 15:45	03/08/2013 15:56

Client: Barr Engineering Company

Work Order: 13030308

Client Project: Leadwood Mine Tailings Site NPDES

Report Date: 28-Mar-13

Sample ID	Client Sample ID	Collection Date	Received Date	Prep Date/Time	Analysis Date/Time
	Test Name				
	Standard Methods 3030 E, 3113 B, Metals by GFAA			03/07/2013 14:42	03/08/2013 15:27
13030308-005D	LW-DUP	03/06/2013 0:00	03/07/2013 9:40		
	EPA 600 4.1.1, 200.7R4.4, Metals by ICP (Dissolved)			03/07/2013 12:42	03/07/2013 19:31
	Standard Methods 3030 B, 3113 B, Metals by GFAA (Dissolved)			03/07/2013 12:07	03/07/2013 15:33
13030308-005E	LW-DUP	03/06/2013 0:00	03/07/2013 9:40		
	Standard Methods 5310 C, Organic Carbon				03/08/2013 20:45
13030308-006A	LW-DUP HNO3 Non-digested	03/06/2013 0:00	03/07/2013 9:40		
	EPA 600 4.1.4, 200.7R4.4, Metals by ICP (Total)				03/18/2013 13:38
13030308-006B	LW-DUP HNO3 Non-digested	03/06/2013 0:00	03/07/2013 9:40		
	EPA 600 4.1.1, 200.7R4.4, Metals by ICP (Dissolved)				03/15/2013 14:03
13030308-007A	LW-DUP Unpreserved TSS Bottle	03/06/2013 0:00	03/07/2013 9:40		
	EPA 600 4.1.1, 200.7R4.4, Metals by ICP (Dissolved)				03/18/2013 11:51

Client: Barr Engineering Company

Work Order: 13030308

Client Project: Leadwood Mine Tailings Site NPDES

Report Date: 28-Mar-13

EPA 600 375.2 REV 2.0 1993 (TOTAL)

Batch R174694		SampType: MBLK		Units mg/L						
SampID: MBLK										
Analyses		RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Sulfate		10		< 10						03/12/2013

Batch R174694		SampType: LCS		Units mg/L						
SampID: LCS SO4										
Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed	
Sulfate	10		29	27	0	107.6	90	110	03/12/2013	

Batch R174694		SampType: MS		Units mg/L						
SampID: 13030308-001BMS										
Analyses		RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Sulfate		200	S	360	200	209.9	74.9	90	110	03/12/2013

Batch R174694		SampType: MSD		Units mg/L				RPD Limit 10		
SampID: 13030308-001BMSD										Date
Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	Analyzed	
Sulfate	200	S	343	200	209.9	66.8	359.6	4.60	03/12/2013	

Batch R174806		SampType: MBLK		Units mg/L						
SampID: MBLK										
Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed	
Sulfate	10		< 10						03/14/2013	

Batch R174806		SampType: LCS		Units mg/L					
SampID: LCS									
Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Sulfate	10		20	20	0	100.9	90	110	03/14/2013

STANDARD METHOD 4500-H B, LABORATORY ANALYZED

Batch R174494		SampType: LCS		Units						
SampID: LCS										Date
Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Analyzed	
Lab pH	1.00		7.01	7.00	0	100.1	99.1	100.8	03/06/2013	

Batch R174494		SampType: DUP		Units				RPD Limit 10			
SampID: 13030308-001B DUP										Date	
Analyses		RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	Analyzed	
Lab pH		1.00		7.95				7.910	0.50	03/07/2013	

Client: Barr Engineering Company

Work Order: 13030308

Client Project: Leadwood Mine Tailings Site NPDES

Report Date: 28-Mar-13

STANDARD METHOD 4500-H B, LABORATORY ANALYZED

Batch R174494		SampType: DUP		Units				RPD Limit 10		
SampID: 13030308-002B DUP										
Analyses		RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	Date Analyzed
Lab pH		1.00		7.89				7.930	0.51	03/07/2013

Batch R174494		SampType: DUP		Units				RPD Limit 10			
SampID: 13030308-003B DUP											Date
Analyses		RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	Analyzed	
Lab pH		1.00		7.92				7.930	0.13	03/07/2013	

Batch R174494		SampType: DUP		Units		RPD Limit 10				
SampID: 13030308-004B DUP										
Analyses		RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	Date Analyzed
Lab pH		1.00		7.94				7.900	0.51	03/07/2013

Batch R174494		SampType: DUP		Units				RPD Limit 10		
SampID: 13030308-005B DUP										
Analyses		RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	Date Analyzed
Lab pH		1.00		7.99				7.970	0.25	03/07/2013

STANDARD METHODS 2340 C

Batch R174563		SampType: MBLK		Units mg/L							Date Analyzed
SampID: MB-R174563											
Analyses		RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit		
Hardness, as (CaCO3)		5		< 5							03/07/2013

Batch R174563		SampType: LCS		Units mg/L						
SampID: LCS-R174563										
Analyses		RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Hardness, as (CaCO3)		5		1020	1000	0	102.0	90	110	03/07/2013

Batch R174563		SampType: MS		Units mg/L						
SampID: 13030308-001BMS										Date
Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Analyzed	
Hardness, as (CaCO3)	5		500	200	320.0	90.0	85	115	03/07/2013	

Batch R174563		SampType: MSD		Units mg/L				RPD Limit 10		
SampID: 13030308-001BMSD										
Analyses		RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	Date Analyzed
Hardness, as (CaCO3)		5		510	200	320.0	95.0	500.0	1.98	03/07/2013

Client: Barr Engineering Company

Work Order: 13030308

Client Project: Leadwood Mine Tailings Site NPDES

Report Date: 28-Mar-13

STANDARD METHODS 2540 D

Batch R174527	SampType: MBLK	Units mg/L								
SampleID: MBLK										Date Analyzed
Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit		
Total Suspended Solids	6		< 6						03/07/2013	

Batch R174527	SampType: LCS	Units mg/L							
SampleID: LCS									
Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Total Suspended Solids	6		103	100	0	103.0	85	115	03/07/2013
Total Suspended Solids	6		101	100	0	101.0	85	115	03/07/2013
Total Suspended Solids	6		95	100	0	95.0	85	115	03/07/2013
Total Suspended Solids	6		101	100	0	101.0	85	115	03/07/2013
Total Suspended Solids	6		99	100	0	99.0	85	115	03/07/2013

Batch R174527		SampType: DUP		Units mg/L				RPD Limit 15			
SampleID: 13030308-003A DUP										Date Analyzed	
Analyses		RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD		
Total Suspended Solids		6		< 6				0	0.00	03/07/2013	

STANDARD METHODS 5310 C, ORGANIC CARBON

Batch R174603		SampType: MBLK		Units mg/L						
SampleID: ICB/MBLK										Date Analyzed
Analyses		RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	
Total Organic Carbon (TOC)		1.0		< 1.0						
										03/08/2013

Batch R174603	SampType: LCS	Units mg/L							
SampleID: ICV/LCS									
Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Total Organic Carbon (TOC)	10		61.4	59.7	0	102.9	90	110	03/08/2013

Batch R174603		SampType: MS		Units mg/L							
SampleID: 13030308-005EMS											Date Analyzed
Analyses		RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit		
Total Organic Carbon (TOC)		1.0		8.1	5.0	3.370	94.0	85	115	03/08/2013	

Batch R174603		SampType: MSD		Units mg/L				RPD Limit 10		
SampleID: 13030308-005EMSD										
Analyses		RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	Date Analyzed
Total Organic Carbon (TOC)		1.0		8.1	5.0	3.370	94.4	8.070	0.25	03/08/2013

Client: Barr Engineering Company

Work Order: 13030308

Client Project: Leadwood Mine Tailings Site NPDES

Report Date: 28-Mar-13

EPA 600 4.1.1, 200.7R4.4, METALS BY ICP (DISSOLVED)

Batch 86292		SampType: MBLK		Units µg/L					
SampID: MB-86292									
Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Cadmium	2.00		< 2.00	2.00	0	0	-100	100	03/07/2013
Zinc	10.0		< 10.0	10.0	0	0	-100	100	03/07/2013

Batch 86292		SampType: LCS		Units µg/L					
SampID: LCS-86292									
Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Cadmium	2.00		45.9	50.0	0	91.8	85	115	03/07/2013
Zinc	10.0		457	500	0	91.3	85	115	03/07/2013

Batch 86292		SampType: MS		Units µg/L						
SampID: 13030308-002DMS										
Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed	
Cadmium	2.00		46.3	50.0	2	88.6	75	125	03/07/2013	
Zinc	10.0		3650	500	3274	75.6	75	125	03/07/2013	

Batch 86292		SampType: MSD		Units µg/L			RPD Limit 20			
SampID: 13030308-002DMSD										
Analyses		RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	Date Analyzed
Cadmium		2.00		46.6	50.0	2	89.2	46.3	0.65	03/07/2013
Zinc		10.0	S	3630	500	3274	70.8	3652	0.66	03/07/2013

EPA 600 4.1.4, 200.7R4.4, METALS BY ICP (TOTAL)

Batch 86302		SampType: MBLK		Units µg/L					
SampID: MB-86302									
Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Cadmium	2.00		< 2.00	2.00	0	0	-100	100	03/08/2013
Zinc	10.0		< 10.0	10.0	0	0	-100	100	03/08/2013

Batch 86302		SampType: LCS		Units µg/L					
SampID: LCS-86302									
Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Cadmium	2.00		50.6	50.0	0	101.2	85	115	03/08/2013
Zinc	10.0		494	500	0	98.9	85	115	03/08/2013

Batch 86302		SampType: MS		Units µg/L					
SampID: 13030308-002CMS									
Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Cadmium	2.00		51.5	50.0	3.1	96.8	75	125	03/08/2013
Zinc	10.0		4040	500	3538	100.4	75	125	03/08/2013

Client: Barr Engineering Company

Work Order: 13030308

Client Project: Leadwood Mine Tailings Site NPDES

Report Date: 28-Mar-13

EPA 600 4.1.4, 200.7R4.4, METALS BY ICP (TOTAL)

Batch 86302		SampType: MSD		Units µg/L			RPD Limit 20			Date Analyzed
SampID: 13030308-002CMSD										
Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD		
Cadmium	2.00		52.1	50.0	3.1	98.0	51.5	1.16		
Zinc	10.0		4050	500	3538	102.8	4040	0.30		

STANDARD METHODS 3030 E, 3113 B, METALS BY GFAA

Batch 86295		SampType: MBLK		Units µg/L						
SampID: MB-86295										Date
Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Analyzed	
Lead	2.00		< 2.00	2.00	0	0	-100	100	03/08/2013	

Batch 86295		SampType: LCS		Units µg/L						
SampID: LCS-86295										
Analyses		RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Lead		2.00		15.3	15.0	0	102.3	85	115	03/08/2013

Batch 86295		SampType: MS		Units µg/L						
SampID: 13030308-001CMS										Date
Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Analyzed	
Lead	2.00		20.9	15.0	6.4042	96.4	70	130	03/08/2013	

Batch 86295		SampType: MSD		Units µg/L				RPD Limit 20		
SampID: 13030308-001CMSD										
Analyses		RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	Date Analyzed
Lead		2.00		20.1	15.0	6.4042	91.3	20.8567	3.70	03/08/2013

STANDARD METHODS 3030 B, 3113 B, METALS BY GFAA (DISSOLVED)

Batch 86289		SampType: MBLK		Units µg/L						Date Analyzed	
SampID: MB-86289											
Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit			
Lead	2.00		< 2.00	2.00	0	0	-100	100	03/07/2013		

Batch 86289		SampType: LCS		Units µg/L						
SampID: LCS-86289										Date
Analyses	RI	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Analyzed	
Lead	2.00		14.0	15.0	0	93.2	85	115	03/07/2013	

Batch 86289		SampType: MS		Units µg/L					
SampID: 13030308-001DMS									
Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Lead	2.00		17.0	15.0	4.7984	81.5	70	130	03/07/2013

Client: Barr Engineering Company

Work Order: 13030308

Client Project: Leadwood Mine Tailings Site NPDES

Report Date: 28-Mar-13

STANDARD METHODS 3030 B, 3113 B, METALS BY GFAA (DISSOLVED)

Batch 86289		SampType: MSD		Units µg/L		RPD Limit 20				Date Analyzed
SampID: 13030308-001DMSD										
Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD		
Lead	2.00		17.0	15.0	4.7984	81.3	17.0267	0.17	03/07/2013	



Receiving Check List

<http://www.teklabinc.com/>

Client: Barr Engineering Company

Work Order: 13030308

Client Project: Leadwood Mine Tailings Site NPDES

Report Date: 28-Mar-13

Carrier: Timothy Mathis

Received By: SRH

Completed by:

On:

07-Mar-13

Timothy W. Mathis

Reviewed by:

On:

07-Mar-13

Michael L. Austin

Pages to follow: Chain of custody

1

Extra pages included

0

Shipping container/cooler in good condition?

Yes ☒

No ☐

Not Present ☐

Temp °C 1.8

Type of thermal preservation?

None ☐

Ice ☒

Blue Ice ☐

Dry Ice ☐

Chain of custody present?

Yes ☒

No ☐

Chain of custody signed when relinquished and received?

Yes ☒

No ☐

Chain of custody agrees with sample labels?

Yes ☒

No ☐

Samples in proper container/bottle?

Yes ☒

No ☐

Sample containers intact?

Yes ☒

No ☐

Sufficient sample volume for indicated test?

Yes ☒

No ☐

All samples received within holding time?

Yes ☒

No ☐

Reported field parameters measured:

Field ☐

Lab ☒

NA ☐

Container/Temp Blank temperature in compliance?

Yes ☒

No ☐

When thermal preservation is required, samples are compliant with a temperature between 0.1°C - 6.0°C, or when samples are received on ice the same day as collected.

Water - at least one vial per sample has zero headspace?

Yes ☐

No ☐

No VOA vials ☒

Water - TOX containers have zero headspace?

Yes ☐

No ☐

No TOX containers ☒

Water - pH acceptable upon receipt?

Yes ☒

No ☐

NPDES/CWA TCN interferences checked/treated in the field?

Yes ☐

No ☐

NA ☒

Any No responses must be detailed below or on the COC.



Chain of Custody

1001 Diamond Ridge, Suite 1100
Jefferson City, MO 65109
(573) 638-5000

13030308

1.8 ICE

Project Number: 25860013.00 TLM2 021

Project Name: Leadwood Mine Tailing Site NPDES

Sample Origination State: MO (use two letter postal state abbreviation)

COC Number: LWP 030613

Location	Start Date	Stop Date	Depth Unit (m./ft. or in.)	Collection Date (mm/dd/yyyy)	Collection Time (hh:mm)	Matrix			Type			pH	Total Suspended Solids	Sulfate	Settleable Solids	Total Organic Carbon	Total Metals	Dissolved Metals	Hardness	VOCs (tared MeOH) #1	GRO, BTE (tared MeOH) #1	DRO (tared unpreserved)	Metals (unpreserved)	SVOCs (unpreserved) #2	% Solids (plastic vial, unpres.)	Total Number of Containers	COC 1 of 1
						Water	Soil		Grab	Comp	QC																
1. LW-001 13030308-001				03/06/13	08:30	X			X			X	X	X	X	X	X	X	X							5	Preservatives: 2 HNO3, 1 H2SO4, 2 Unpreserved
2. LW-002		002		03/06/13	09:55	X			X			X	X	X	X	X	X	X	X							5	Preservatives: 2 HNO3, 1 H2SO4, 2 Unpreserved
3. LW-US		003		03/06/13	08:10	X			X			X	X	X		X	X	X	X							5	Preservatives: 2 HNO3, 1 H2SO4, 2 Unpreserved
4. LW-DS		004		03/06/13	07:40	X			X			X	X	X		X	X	X	X							5	Preservatives: 2 HNO3, 1 H2SO4, 2 Unpreserved
5. LW-DUP		005		03/06/13		X			X			X	X	X	X	X	X	X	X							5	Preservatives: 2 HNO3, 1 H2SO4, 2 Unpreserved
6.																											
7.																											
8.																											

Comments: Invoice to Mark Nations at Doe Run. Results to be sent to Allison Olds (aolds@barr.com) at Barr Engineering, Andrea Nord (anord@barr.com) at Barr Engineering, and Mark Nations (mnations@doerun.com) at Doe Run.

Matrix is surface water.

Metals include Cadmium, Lead, and Zinc.

Common Parameter/Container - Preservation Key

#1 - Volatile Organics = BTEX, GRO, TPH, 8260 Full List

#2 - Semivolatile Organics = PAHs, PCP, Dioxins, 8270 Full List, Herbicide/Pesticide, PCBs

#3 - General = pH, Chloride, Fluoride, Alkalinity, TSS, TDS, TS, Sulfate

#4 - Nutrients = COD, TOC, Phenols, Ammonia Nitrogen, TKN

Relinquished By:

Stephen Moilanen

Relinquished By:

Stephen Moilanen

On Ice? ☒ Y ☐ N

Date: 3-6-13

Time: 10:00

Received By:

Stephen Moilanen

Date: 3-7-13

Time: 05:00

On Ice? ☒ Y ☐ N

Date: 3-7-13

Time: 09:40

Received By:

Stephen Moilanen

Date: 3-7-13

Time: 9:40

Samples Shipped VIA: ☐ Air Freight ☐ Federal Express ☐ Sampler

☒ Other: Courier

Air Bill Number:

1.8 ICE

Distribution: White - Original Accompanies Shipment to Lab; Yellow - Field Copy; Pink - Lab Coordinator

Cou 1.8 ICE #3